

## Cetol BL 21 plus 'Cradle to Gate' Data

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Akzo Nobel Specialist Coatings is a trading division  
 of Akzo Nobel Decorative Coatings Limited.

Akzo Nobel Specialist Coatings has embarked on a process of  
 assessing the environmental performance of several of its  
 water-borne coating systems, using Life Cycle Assessments.  
 This 'cradle to grave' assessment method is recognised to be  
 the best tool available for assessing environmental  
 performance, and our studies have been conducted according  
 to the standards specified in the ISO 14000 series.

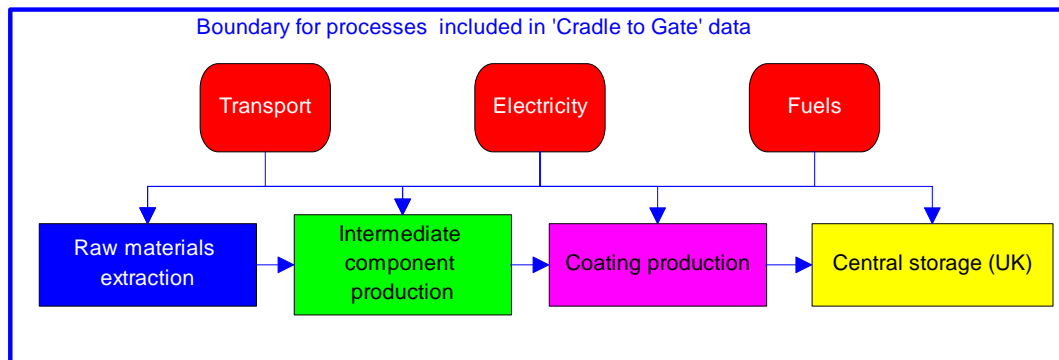
In order to make this information available to our customers  
 in as useable a form as possible, we have developed these  
 environmental product data sheets, which summarise the data  
 generated by our LCA studies.

**Cetol BL21 plus** is a high performance translucent  
 water-borne, base stain, supplied for brush application,  
 in 1, 2.5 and 5 litre containers.

It is an alkyd/acrylic resin formulation dispersed in  
 water, with a volume solids concentration of  
 approximately 26% (depending upon colour).

***The Functional unit***

The data provided below are cradle to storage depot  
 data (as illustrated in the figure below) for the  
 production of **1000 kg of Cetol BL 21 plus**



*Labelling and declaration of contents*

Content	Symbol letters	Risk phrases
Propylene glycol	N/A	N/A
2-butoxyethanol	Xn, Xi	R20/21/22/37

*Environmental Data*

The data presented here relate to current production, and were  
 gathered during 2002/2003. Contact Akzo Nobel Specialist Coatings  
 for further details of the LCA studies upon which they are based,  
 and for full technical and safety data for these products.

This data include the effects of all transport processes from the  
 extraction of raw materials from the Earth, until the packaged  
 product arrives at the storage depot in the UK.

For customers intending to make the Sikkens Translucent  
 Coating System a part of their project, they are able to use  
 these product-specific data as a direct addition to whole-  
 project environmental assessments. By simply estimating the  
 quantities of each coating required to produce and maintain  
 the timber components within a project, the appropriate  
 multiples of either the raw data or the impact data can be  
 added to their whole-project data. Akzo Nobel Specialist  
 Coatings technical support staff can assist with this.

## Consumption and emissions data per 1000 kg of Cetol BL 21 plus.

### Non Renewable Resources

Without energy content	kg	With energy content	MJ
Bauxite	0.589	Coal	5,190
Calcium (Ca)	0.0169	Gas	28,420
Iron (Fe)	0.238	Oil	21,912
Sulfur (S)	3.524		

### Renewable Resources

Without energy content	kg	With energy content	MJ
None listed		None listed	

### Electricity Consumption

Electricity production source	kWh
Gas fired	36
Oil fired	19
Coal fired	148
Nuclear	113
Hydro	33

### Waste Generated

Material	kg
Special waste	12
Bulk waste	41

### Emissions to Air

Material	q
Ammonia	2.943
Aromatics (unspecified)	11.431
Arsenic	0.005
Benzene	0.031
Butanoic acid	21,401
Cadmium (II) ion	0.004
Carbon dioxide	2,177,184
Carbon monoxide	2326
Dinitrogen oxide	0.028
Dust (PM10)	407
Ethylene	1.997
Ethylene glycol	0.234
Ethylene oxide	3.783
Formaldehyde	0.19
Hydrocarbons (excluding.	4.955
Hydrogen chloride	64
Hydrogen fluoride	3.502
Lead (II) ion	0.107
Methane	32,844
Methyl methacrylate	4.884
Nickel	0.006
Nitrogen dioxide	0.136
Nitrogen oxides (as NO2)	11,525
PAH*	0.369
Propane	0.024
Propylene	0.205
Propylene glycol	0.534
Propylene oxide	0.846
Soot	857
Sulphur dioxide	10,256
Sulphur hexafluoride	0.006
Sulphur trioxide	0.201
Toluene	0.244
Non-methane VOC	4,724
Zinc (II) ion	2.684

\* Polycyclic Aromatic Hydrocarbons

### Emissions to Water

Material to fresh water	q
Ammonia	264
Ammonium	150
Benzene	0.005
Biological Oxygen Demand (BOD)	205
Chemical Oxygen Demand (COD)	2,740
Chlorine	3,826
Dust (PM10)	1,885
Hydrogen chloride	34
Hydrogen sulfide	0.009
Mercury (II) ion	0.001
Nickel	0.023
Nitrate	0.704
Nitrogenous compounds	0.407
Phenol	5.881
Phosphate	29
Sulphates	3,015
Sulphur dioxide	6.89
Sulphuric acid	18
Zinc (II) ion	0.155
Material to marine water	q
Dust (PM10)	32
Hydrogen chloride	37
Phenol	0.562

### Life Cycle Impact Assessment Scores

Category	Units	Score
Global warming	kg CO2 eq.	2,933
Ozone layer depletion	kg CFC-11 eq.	0
Photochemical oxidation	kg ethylene eq.	0.765
Acidification	kg SO2 eq.	18
Eutrophication	kg PO4--- eq.	1.73

\*The impact categories used, are explained in Datasheet 1 of this series